

**IN THE CLAIMS:**

1 1.-28. (Cancelled).

1 29. (Currently Amended) A method for accessing a data storage system, comprising:

2 ~~maintaining a virtual logical unit assigned to one or more specific clients;~~

3 receiving a ~~log in~~login request from a first specific client, the ~~log in~~login request  
4 directed to the ~~virtual logical unit~~data storage system;

5 generating, in response to the ~~log in~~login request, a first logical unit number map  
6 (lun map), ~~from the virtual logical unit to one or more physical logical units, the first~~  
7 ~~specific client having for the specific client by determining one or more physical logical~~  
8 ~~unit numbers (PLUNs) of the data storage system that the first specific client has~~

9 permission to access and then mapping one or more client specific virtual logical unit  
10 numbers (VLUNs) of the first specific client to the one or more PLUNs, in the first lun  
11 map~~the physical logical units mapped by the first lun map, the first lun map presenting~~  
12 ~~one or more client specific lun numbers, accessible solely by the first specific client,~~  
13 ~~mapped to one or more physical lun numbers utilized by the storage operating system;~~

14 exporting the client specific ~~lun~~VLUNs ~~numbers~~ to the first specific client; and

15 receiving a data access request command from the first specific client, the request  
16 directed to a selected client specific ~~lun~~VLUN in the first lun map, and translating the  
17 client specific ~~lun~~VLUN into a selected ~~physical lun number~~PLUN utilizing the first lun  
18 map, and performing the data access request command on the selected PLUN associated  
19 with the data storage system~~the physical lun number accessing the physical logical unit~~  
20 ~~supporting the client specific lun.~~

1 30. (Currently Amended) The method of claim 29, further comprising:

2 | generating the first lun map to have a set of ordered pairs mapping the one or  
3 | more client specific virtual luns VLUNs to one or more physical luns PLUNs.

1 31. (Cancelled).

1 32. (Currently Amended) The method of claim 29, further comprising:

2 | identifying ~~a set of~~ the one or more luns PLUNs that the client may access in  
3 | response to the client logging in by,

4 | (a) selecting a lun data structure;

5 | (b) searching through a list of client identifiers in the lun data structure to identify

6 | whether the client may access the ~~selected one or more lun~~ PLUNs;

7 | repeating steps (a) and (b) for each lun data object associated with a given storage  
8 | system; and

9 | accessing, in response to a client data access request, a lun data object by use of

10 | the first lun map and without searching the lun data structure.

1 33. (Currently Amended) The method of claim 29, further comprising:

2 | accessing a set of lun data structures associated with the storage system in

3 | identifying the one or more ~~physical logical units~~ PLUNs which the client has permission  
4 | to access.

1 34. (Currently Amended) The method of claim ~~29~~32, further comprising:

2 using a world wide name as ~~a~~the client identifier.

1 35. (Currently Amended) The method of claim 29, further comprising:

2 using a Fibre Channel switching network for the first specific client to access the  
3 data storage system.

1 36. (Currently Amended) The method of claim 29, further comprising:

2 using an Ethernet switching network for the first specific client to access the data  
3 storage system.

1 37. (Previously Presented) The method of claim 29, further comprising:

2 using a multi-protocol storage appliance as the data storage system.

1 38. (Currently Amended) The method of claim 29, further comprising:

2 exporting ~~a set of virtual luns~~the client specific VLUNs to the client as a set of  
3 accessible luns.

1 39. (Currently Amended) The method of claim 29, further comprising:

2 containing the first lun map within an initiator data structure ~~accessible to the~~  
3 ~~virtual logical unit.~~

1 40. (Currently Amended) A data storage system, comprising:

2 a ~~virtual logical unit assigned to a specific client;~~  
3 a ~~log in~~login request received from the specific client, the ~~log in~~login request  
4 directed to the ~~virtual logical unit~~data storage system;  
5 a logical unit number map (lun map) ~~initiated~~generated, in response to the ~~log~~  
6 ~~in~~login request, the lun map mapping one or more client specific virtual logical unit  
7 numbers (VLUNs) to one or more physical logical unit numbers (PLUNs) of the data  
8 storage system that the first specific client has permission to access~~from the virtual~~  
9 ~~logical unit to one or more physical logical units, the specific client having permission to~~  
10 ~~access the physical logical units indicated by the lun map, the map presenting one or~~  
11 ~~more client specific lun numbers mapped to one or more physical lun numbers utilized by~~  
12 ~~the storage operating system;~~  
13 the client specific ~~lun numbers~~VLUNs exported to the client; and  
14 a data access request command received from the specific client, the request  
15 directed to a client specific VLUN in the lun map, ~~selected client specific lun, and~~  
16 translating the client specific ~~lun~~VLUN by the map into a selected physical lun  
17 ~~number~~PLUN, and performing the data access request command on the selected PLUN  
18 associated with the data storage system~~the physical lun number accessing a the physical~~  
19 ~~logical unit supporting the client specific lun.~~

1 41. (Currently Amended) The data storage system of claim 40, further comprising:

2 the lun map having a set of ordered pairs mapping the one or more virtual client  
3 specific VLUNs ~~luns to the one or more physical luns~~PLUNs.

1 42. (Cancelled).

1 43. (Currently Amended) The data storage system of claim 40, further comprising:

2 | ~~a set of luns that~~ one or more PLUNs that the specific client may access identified  
3 | in response to the specific client logging in by,

4 | (a) selecting a lun data structure;

5 | (b) searching through a list of client identifiers in the lun data structure to identify

6 | whether the specific client may access the ~~selected lun~~ one or more PLUNs;

7 | repeating steps (a) and (b) for each lun data object associated with a given storage  
8 | system; and

9 | a client data access request to access a lun data object by use of the lun map and  
10 | without searching the lun data structure.

1 44. (Currently Amended) The data storage system of claim 40, further comprising:

2 | a set of lun data structures associated with the storage system accessed in  
3 | identifying the one or more ~~physical logical units~~ PLUNs which the specific client has  
4 | permission to access.

1 | 45. (Currently Amended) The data storage system of claim ~~40~~43, further comprising:

2 | a world wide name used as a ~~the~~ client identifier.

1 46. (Currently Amended) The data storage system of claim 40, further comprising:

2 | a Fibre Channel switching network used for the specific client to access the data  
3 | storage system.

1 | 47. (Currently Amended) The data storage system of claim 40, further comprising:

2 | an Ethernet switching network used for the specific client to access the data  
3 | storage system.

1 | 48. (Previously Presented) The data storage system of claim 40, further comprising:

2 | a multi-protocol storage appliance used as the data storage system.

1 | 49. (Currently Amended) The data storage system of claim 40, further comprising:

2 | ~~a set of virtual luns~~ the one or more client specific VLUNs exported to the client  
3 | as a set of accessible luns.

1 | 50. (Currently Amended) The data storage system of claim 40, further comprising:

2 | the lun map contained within an initiator data structure ~~accessible to the virtual~~  
3 | ~~logical unit.~~

1 | 51. (Currently Amended) A computer readable media, comprising:

2 | said computer readable media containing instructions for execution on a processor  
3 | for accessing a data storage system, the data storage system having the steps of,

4 | ~~maintaining a virtual logical unit assigned to a specific client;~~

5 receiving a log in/login request from the specific client, the log in/login request  
6 directed to the virtual logical unit data storage system;

7 ~~initiating~~generating, in response to the log in/login request, a logical unit number  
8 map (lun map) for the specific client by determining one or more physical logical unit  
9 numbers (PLUNs) of the storage system that the first specific client from the virtual  
10 logical unit to one or more physical logical units, the specific client having  
11 ~~permission~~has permission to access and then mapping one or more client specific virtual  
12 logical unit numbers (VLUNs) to the one or more PLUNs~~the physical logical units~~  
13 ~~indicated by the lun map, the map presenting one or more client specific lun numbers~~  
14 ~~mapped to one or more physical lun numbers utilized by the storage operating system;~~

15 exporting the client specific ~~lun numbers~~VLUNs to the client; and

16 receiving a data access request command from the client, the request directed to a  
17 ~~selected client specific VLUN~~lun, and translating the client specific VLUN ~~lun~~ by the lun  
18 map into a selected ~~physical lun number~~PLUN utilizing the lun map, the physical lun  
19 ~~number accessing the physical logical unit supporting the client specific lun and~~  
20 performing the data access request command on the selected PLUN.

1 52. (Currently Amended) A method for accessing a data storage system, comprising:

2 logging into the data storage system by a client;

3 generating, in response to the client logging into the data storage system, a logical  
4 unit number map (lun map) for one or more physical logical units (PLUNs) the client is  
5 permitted to access, the lun map excluding mapping of ~~physical logical units~~PLUNs the  
6 client is not permitted to access;

7           exporting the lun map to the client; and  
8           |       receiving a data access request from the client for data on a ~~lun~~-specific PLUN  
9           | mapped by the lun map.

1   53. (Currently Amended) The method of claim 52, further comprising:  
2           |       accessing the ~~physical logical unit~~PLUNs supporting ~~the~~ a client specific  
3           | ~~lun~~virtual logical unit number (VLUN).

1   54. (Currently Amended) The method of claim 52, further comprising:  
2           |       identifying a ~~set of lun~~the one or more PLUNs that the client may access in  
3           | response to the client logging in by,  
4           (a) selecting a lun data structure;  
5           (b) searching through a list of client identifiers in the lun data structure to identify  
6           | whether the client may access the ~~selected lun~~one or more PLUNs;  
7           |       repeating steps (a) and (b) for each lun data object associated with a given storage  
8           | system; and  
9           |       accessing, in response to a client data access request, a lun data object by use of  
10          | the lun map and without searching the lun data structure.

1   55. (Currently Amended) The method of claim 53, further comprising:  
2           |       accessing a set of lun data structures associated with the storage system in  
3           |       identifying the one or more ~~physical logical units~~PLUNs which the client has permission  
4           | to access.



1 56. (Currently Amended) The method of claim 53, further comprising:  
2 containing the lun map within an initiator data structure ~~accessible to the virtual~~  
3 ~~logical unit.~~

1 57. (Currently Amended) A system for accessing a data storage system, comprising:  
2 a client configured to log into the data storage system;  
3 in response to the client logging into the data storage system, a client specific  
4 logical unit number map (lun map) configured to be generated for one or more physical  
5 logical units (PLUNs) the client is permitted to access, the lun map further configured to  
6 exclude mapping of ~~physical logical units~~ PLUNs the client is not permitted to access;  
7 the lun map further configured to be exported to the client; and  
8 the client further configured to send a data access request for data on a specific  
9 PLUN ~~lun~~-mapped by the lun map.

1 58. (Currently Amended) The system of claim 57, further comprising:  
2 the ~~physical lun number~~ specific PLUN configured to access the physical logical  
3 unit.

1 59. (Currently Amended) The system of claim 57, further comprising:  
2 (a) a lun data structure selected in response to the ~~log in~~ login by the client;  
3 (b) a storage system to search through a list of client identifiers in the lun data  
4 structure to identify whether the client may access ~~the selected lun~~ a selected PLUN, the  
5 storage system to repeat steps (a) and (b) for each lun data object associated with a given  
6 storage system; and

7 | a lun data object, associated with the selected PLUN, accessed by use of the lun  
8 | map and without a search of the lun data structure.

1 | 60. (Currently Amended) The system of claim 57, further configured to access a set of  
2 | lun data structures associated with the storage system ~~to identify~~ by identifying the one or  
3 | more ~~physical logical units~~ PLUNS which the client has permission to access.

1 | 61. (Currently Amended) The system of claim 57, further comprising:  
2 | ~~an initiator data structure configured to access the virtual logical unit contained in~~  
3 | the lun map configured within an initiator data structure.

1 | 62. (Currently Amended) A computer readable media, comprising:  
2 | said computer readable media containing instructions for execution on a processor  
3 | for the practice of a method of accessing a data storage system, the method having the  
4 | steps of,  
5 | logging into the data storage system by a client;  
6 | generating a client specific logical unit number map (lun map), in response to the  
7 | client logging into the data storage system, for one or more physical logical units  
8 | (PLUNs) the client is permitted to access, the lun map excluding mapping of ~~physical~~  
9 | ~~logical units~~ PLUNs the client is not permitted to access;  
10 | exporting the lun map to the client; and  
11 | receiving a data access request from the client for data on a ~~lun~~ specific PLUN  
12 | mapped by the lun map.